

December Mixed Waste Subgroup Highlights

The Hanford STCG Mixed Waste Subgroup met on December 10, 1998 in the EESB Cayuse Room. Kevin Salmon from ATG, Inc. in Richland gave a viewgraph presentation about ATG and the work they are doing. At the present time they are in the fourth year of a five year contract with DOE for low level waste treatment and to decontaminate and free release metals. There is also a separate compaction contract in place. ATG is located on a 45 acre site in North Richland across from PNNL. A batch process furnace is now operating to thermally heat treat low level wastes and is licensed by the Washington State Ecology Department. ATG is working on getting a permit to heat treat mixed wastes and it may be issued in mid-January 1999. There are 125 employees at the Richland ATG site and safety is the first priority.

Due to the increasing costs for radioactive waste disposal ATG employs a triage approach to lower overall disposal costs. The idea is to use a number of techniques such as thermal destruction, compaction, decontamination, etc. to reduce the rad waste disposal costs. All incoming material to ATG is sorted by activity and type. The metals and debris are volume reduced and decontaminated for free release. The low activity waste is supercompacted and sent to licensed disposal. Liquids and sludge, resins, biological materials, and higher activity material is sent to the SAFGLAS process. Super compaction has a 6:1 to 10:1 volume reduction while the SAFGLAS process has a 200 to 1 volume reduction as well as a 10:1 to 50:1 mass reduction. ATG's SAFGLAS process involves the use of three major pieces of equipment: a bulk processing unit, a glass melter, and a gas vitrification unit. The bulk processing unit just started up and is a drum oven that handles biological waste, metals, and heterogeneous waste in drums. The glass melter receives waste from the bulk processing unit as well as other waste such as slurries or sludges, shredded waste, and oils. The glass melter will run three years without shutting down but no metals can be fed into it or the unit would be poisoned. The gas vitrification unit is a plasma arc furnace operating at 10,000°F and can process up to 150 pounds per hour of waste including resins, halogens, metals, etc. The SAFGLAS process minimizes the amount of secondary waste and results in drums of glass and off-gases that are scrubbed a number of times.

ATG is continuously improving its waste processing capabilities at the Richland site. Supercompaction began in 1989, the SAFGLAS operation started in 1997 and the Bulk Processing Unit came on line in 1998. In 2000 the stabilization and thermal treatment of MW is to be underway. Kevin described the buildings being constructed at ATG including the Waste Storage and GASVIT buildings. Kevin stated that the permits and paperwork associated with obtaining a MW permit is about three times more than for a non-mixed waste rad permit. The Stabilization Building, which is ready for operation will handle amalgamation/stabilization, deactivation, macro/micro-encapsulation, and physical extraction operations. The GASVIT Building, which is still being constructed, will handle the destruction of waste via incineration or combustion and the stabilization of mercury waste.

Kevin then reviewed the operations to be performed in the mixed waste process facility. There are 5 waste processing lines in the facility and the first 4 lines (lines 100 to 400) will be starting up in June 1999. The technical approaches for all five lines were reviewed in detail by Kevin. Line 100 will treat soils, sludges and inorganic debris by drying, shredding, screening and mixing with reagents prior to disposing of the waste in containers. Line 200 will treat inorganic liquids and sludges in a series of chemical treatment steps as well as drying and solidification of the waste before disposal. Line 300 will treat metals and lead by cutting and shearing the waste, physical extraction and then mixing the waste with plastic and placing it in drums for disposal. Line 400 will handle heterogeneous solids and debris. Bulk material will first be sorted and all non-debris items sent elsewhere for treatment while the debris is placed and compacted into drums to be supercompacted and then macro-encapsulated along with all debris waste received in drums. Line 500 is to handle all organic solids, liquids, sludges and debris. This is where the GASVIT process is located as well as the evaporator, filters and scrubbers associated with the GASVIT process. The above facility is to be zero discharge.

Kevin reviewed the waste management steps involved with treating waste at ATG, highlighting the amount of characterization, sampling and testing done throughout the entire process from pre-acceptance to waste disposal. Kevin then reviewed some of the analytical parameters that the waste is tested for including TCLP analysis. He then presented the waste treatment certification parameters for the final waste packages.

Norm Olson and Larbi Bounini distributed copies of a new MW Technology Need entitled: "Non-Destructive Assay (NDA) of CH TRUW to meet WIPP Requirements for Burial Boxes – Certification of Deployed Boxed Waste Assay System (BWAS)." Norm has been working with the national TRU Waste Steering Committee and the Carlsbad Site to get funding to certify this boxed waste assay system at WRAP. After Carlsbad and the TRU Waste Committee approve this need then the MWFA will provide funding to meet it. The Subgroup endorsed this need and sent it to the Management Council for their endorsement.

Norm Olson addressed the salt stabilization problem at the Effluent Treatment Facility and stated that a company out of Warm Springs, Oregon, Tectonics International, has developed a rapid strength, polymeric cement that may meet our needs. The cement is called Tectonite and Norm will use \$29K of Mixed Waste Focus Area (MWFA) funding to do a test of this cement to see if it will meet our requirements. If Tectonite can meet the tests then this would be a low cost method of solving the ETF salt stabilization problem. Tectonite will be tested using the same surrogate wastes that the five other systems being examined are using.

Hanford will be sending samples to be tested at Lasertronics in California. These samples will have paint removed using the laser decontamination system and the tests will be videotaped. This will be started in January. Norm also reviewed the current status of actions to meet the MW needs for Hanford.

In MWFA news, some of our Subgroup members attended the NDA meeting put on by the MWFA. PNNL had a poster session on waste sorting of TRU from non-TRU waste at the meeting. There will be a MWFA Program Review in Idaho Falls on February 23-25, 1999. Ellen Dagan will be chairing an NDA panel and Larbi and Norm will be on some of these panels. One item on the agenda is a look at restructuring the MWFA and at the budget allocation for FY 99 and 2000. As far as ASTD project funding, the site will start three projects this year: In-Situ Redox, Hot Cell Cleanout, and Bank Stabilization. This is due to DOE only getting \$16 million rather than the \$31 million needed to fund all the proposals. Norm Olsen reviewed the changes made to the MW Subgroup FY99 Work Plan to date. The Work Plan was approved by the Subgroup. Norm will work with Ellen on her presentation to the STCG Management Council. Copies of the work plan will be made for the meeting, also. The next MW Subgroup meeting will be on January 14, 1999.

Mixed Waste Subgroup Meeting Attendees - 12/10/98

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|-----------------------|---------|----------|
| Steve Weakley | PNNL | 372-4275 |
| Gordon Rogers | HAB | 547-7403 |
| Norm Olson | FDH-TM | 372-4810 |
| Dave Einan | EPA | 376-3883 |
| John Neath | DOE | 372-4876 |
| Bill Bonner | PNNL | 372-6263 |
| Tina Masterson Heggen | Ecology | 736-3014 |
| Larbi Bounini | WMH | 376-4650 |